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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/090,938

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Young C. Yoon

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7590

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EXAMINER

NGUYEN, HIEP

ART UNIT

PAPER NUMBER

2816

DATE MAILED: 04/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/090,938	<b>Applicant(s)</b> YOON ET AL.	
	<b>Examiner</b> Hiep Nguyen	<b>Art Unit</b> 2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-11 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The amendment filed on 12-18-03 has been received and entered in the case. New ground of rejections necessitated by the amendment is set forth below.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans et al. (US Pat. 6,497,656) in view of Holtzman et al. (US Pat. 6,404,760) and Ozluturk et al. (US Pat. 6,377,620).

Regarding claims 1 and 4-6 and 8, figure 1 and 2 of Evans show a communication device for communicating with a plurality of communication terminals in a multiple-access communication system, comprising:

correlation calculation means (1728) for calculating a correlation between a received signal (1728) including a plurality of signals respectively transmitted from the plurality of communication terminals (80) using ultra-wide band (UWB) communication waveforms and local pulses;

demodulation means (1742) demodulating data transmitted from each of the plurality of communication terminals. Figure 2 of Evans does not show interference canceling means for removing a multiple-access interference among the plurality of signals transmitted from the plurality of communication terminals from the calculated correlation. Figure 4 of Holtzman shows an interference canceller (400) for reducing multiple access interference in order to recover a weaker desired signal (col. 8 lines 13-36). Therefore, it would have been obvious to those skilled in the art at the time the invention was made to implement an interference canceller

taught by Holtzman between the correlator (1728) and the demodulator (1742) for recovering a weaker desired signal corrupted by interferences from other signals.

Regarding claim 2 and 3, the combination of Evans and Holtzman references includes all the limitation of claims 2 and 3 except for the limitation of a M-ary pulse position modulation. However, it is old and well known in the art that one of the common methods for modulating digital signals is the use of multilevel system or M-ary techniques. M-ary modulation techniques are natural extensions of binary modulation techniques having an advantage of bandwidth reduction (col.1, lines 10-17). Therefore, it would have been obvious to those skilled in the art at the time the invention was made to utilize the M-ary modulation techniques in Evans' system for providing bandwidth reduction.

Regarding claim 9, the combination of Evans and Holtzman references shows a method of communication for communicating with a plurality of communication terminals in a multiple-access communication system, comprising the steps of:

calculating a correlation (1728) between a received signal including a plurality of signals respectively transmitted from the plurality of communication terminals wideband (UWB) communication waveforms and local pulses at possible positions in the respective signals transmitted from each of the plurality of communication terminals (a plurality of remote communicators 80 in figure 1; see col. 4, lines 39-48);

removing a multiple access interference among the plurality of signals transmitted from the calculated correlation; and

demodulating (1742) data transmitted from each of the plurality of communication terminals based on the calculated correlation having the multiple-access interference removed therefrom.

Regarding claim 10, the combination of Evans and Holtzman references shows "a program used by a computer" to perform communication with a plurality of communication terminals (a plurality of remote communicators 80 in figure 1; see col. 4, lines 39-48) in a multiple-access communication system, the program comprising the steps of:

calculating a correlation (1728) of a received signal including a plurality of signals respectively transmitted from the plurality of communication terminals using ultra-wideband

(UWB) communication waveforms with respect to pulses (col. 4) at possible positions in the respective transmitted from each of the plurality of communication terminals;

removing a multiple access interference among the plurality of signals transmitted from the calculated correlation; and

demodulating (1742) data transmitted from each of plurality of plurality of communication terminals based on the calculated correlation having the multiple-access interference removed therefrom.

Regarding claim 11, the combination of Evans and Holtzman references shows “a storage medium storing a program used by a computer to perform communication a plurality of communication terminals in a multiple-access communication system, the program comprising the step; of:

calculating a correlation (1728) of a received signal including a plurality of signals respectively transmitted from the plurality of communication terminals (a plurality of remote communicators 80 in figure 1; see col. 4, lines 39-48) using ultra-wideband (UWB) communication waveforms with respect to pulses at possible positions in the respective signals transmitted from each of the plurality of communication terminals;

removing a multiple access interference among the plurality of signals transmitted from the calculated correlation; and

demodulating (1742) data transmitted from each of the plurality of communication terminals based on the calculated correlation and a “multiple access interference” among the plurality of signals transmitted from the plurality of communication terminals having the multiple-access interference removed therefrom.

Note that the recitations “a program used by a computer to perform communication” in claim 10 and “a storage medium storing a program used by a computer” in claim 11 has not been given patentable weights because the recitations occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

***Response to Arguments***

In the Remarks, page 11, 2<sup>nd</sup> paragraph, the Applicant argues that “the system of Evans et al. is not designed to receive a plurality of signals transmitted from a plurality of communication terminals”. In fact, column 4, lines 39-56 of the specification discloses that “UWB node 60 (figs. 1 and 2) receives data from **at least one** remote communicator 80 via ultra-wide band link 15” thus, the system of Evans et al. is designed to receive a plurality of signals transmitted from a plurality of communication terminals”.

***Allowable Subject Matter***

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 7 is objected to because the prior art of record fails to teach or fairly suggest a demodulation means comprising an inverse correlation calculator means and a detection means.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2816

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hiep Nguyen whose telephone number is (571) 272-1752. The examiner can normally be reached on Monday to Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hiep Nguyen

03-24-04



TUANT.LAM  
PRIMARY EXAMINER